agent than do the checks. He interprets the first change as due to greater permeability of plasmolytic agents, and the second change as due to loss of solutes during the period of higher permeability. Szücs[28] finds that aluminum salts render cells more difficult to plasmolyze because they harden the protoplasm, although they really decrease its permeability. One must look out for a similar condition with electrical stimuli. The experiments are qualitative but suggest the need of very careful quantitative studies.—Wm. Crocker.

Texas root rot fungus.—Duggar[29] has investigated the causal organism of one of the most destructive of the cotton diseases, an organism which seems to be confined largely to Texas, where the average losses have been variously estimated to be $2,000,000 to $3,000,000. In addition to the attacks on cotton, the fungus damages such crops as alfalfa, beans, sweet potatoes, and certain orchard fruits. As illustrating the omnivorous habit of the fungus, Duggar enumerates a list of nearly 30 host plants (trees, shrubs, and herbs) already noted as used by the fungus. The chief feature of the disease is the sudden wilting and dying of the affected individuals. The fungus was described by Shear as *Ozonium omnivorum*, but Duggar concludes that it should be transferred to *Phymatotrichum*. In the revised description of the species the habitat is stated as follows: "Hyphae on living roots of many plants and in the soil; conidial stage on soil in the vicinity of diseased plants."—J. M. C.

Embryo and seedling of Dioscorea.—Miss Smith[30] has investigated the embryo and seedling of *Dioscorea villosa*, a genus long known through the work of Solms-Laubach as furnishing evidence of a "second cotyledon," or at least a seedling structure quite different from what had come to be regarded as the monocotyl type. Miss Smith traced the development of the embryo to the spherical 4-celled proembryo, and then followed the appearance of the organs. She observed no cotyledonary ring, and claims that the single cotyledon originates as a terminal structure. It may be stated that the course of the vascular strands suggests that the leaf called the "first secondary leaf" occupies the position of a "second cotyledon," which would make the growing point of the stem a terminal structure, and both cotyledons lateral. This, however, is a matter of interpretation in connection with material.—J. M. C.

Vitality of moss protonema.—Miss Bristol[31] has discovered some remarkable cases of the retention of vitality by the protonema of mosses. In samples of soils obtained from various places for the purpose of ascertaining by means

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[28] Rev. in Bot. Gaz. **56**:245. 1913.

[29] Duggar, B. M., The Texas root rot fungus and its conidial stage. Ann. Mo. Bot. Gard. **3**:11–23. *figs. 6*. 1916.

[30] Smith, Pearl M., The development of the embryo and seedling of *Dioscorea villosa*. Bull. Torr. Bot. Club **43**:545–558. *pls. 31–34*. 1916.

[31] Bristol, B. Muriel, On the remarkable retention of vitality of moss protonema. New Phytol. **15**:137–143. *figs. 3*. 1916.

of cultures the algae present in the form of "resting spores," protonema from certain soils began to develop. In these soils the protonema had persisted in the dried condition for 46, 48, and 49 years. A description is given of the appearance of the cells, which seemed to be in vigorous condition. Moss spores contain chlorophyll and are usually short-lived. "Hence the power to produce a resting protonema filament which is able to resume growth, even after half a century, is a great asset to the plant in preventing its extinction through adverse climatic conditions."—J. M. C.

Anatomy of Drimys.—The genus *Drimys* (Magnoliaceae), belonging to the Southern Hemisphere, is very interesting on account of the absence of vessels. JEFFREY and COLE[32] have investigated its wound reactions from material obtained from New Zealand and Java, and also from material at Kew. As a result of injury, the roots develop peculiar tracheary structures, which are regarded as a "reversionary return of vessels" because the markings of the lateral walls resemble those found in the vessels of the Magnoliaceae. They are clearly distinct from ordinary tracheids, but lack the perforations of normal vessels. The authors conclude that these traumatic structures are to be interpreted as a clear indication of the former presence of vessels in *Drimys*.—J. M. C.

A cedar swamp on Long Island.—A swamp on the southern shore of Long Island, New York, about one mile long and half as wide, is, according to TAYLOR,[33] of special interest because (1) it is probably the most northerly grove of *Chamaecyparis thyoides* on the coastal plain of anything like that size; (2) the character of the undergrowth, which includes 77 per cent of species northern in character; and (3) it affords evidence of coastal subsidence in the transition between the swamp and the open salt marsh and in the number of dead and dying trees. This evidence is all the more convincing because of the remoteness of any barrier beach or other possible regulator of exceptional tides, a possible alternative to recent subsidence.—GEO. D. FULLER.

Flora of Isle Royale, Michigan.—COOPER[34] has supplemented his excellent ecological analysis of the vegetation of Isle Royale[35] by a catalogue of its vascular plants. As a list of the mosses of the same island was previously

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[32] JEFFREY, EDWARD C., and COLE, RUTH D., Experimental investigations on the genus *Drimys*. Ann. Botany **30**:359–368. *pl. 7*. 1916.

[33] TAYLOR, NORMAN, A white cedar swamp at Merrick, Long Island, and its significance. Mem. N.Y. Bot. Gard. **6**:79–88. 1916.

[34] COOPER, W. S., A catalogue of the flora of Isle Royale, Lake Superior, Michigan. Acad. Sci. Report **16**:109–131. 1914.

[35] ———, The climax forests of Isle Royale. BOT. GAZ. **55**:1–44, 115–140, 189–235. 1913.